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ABSTRACT

An analysis of loneliness and friendship in first-year university students is examined. Random samples of students (N=390) enrolled in introductory psychology classes were polled in the first two weeks of the academic year: the last three weeks before first semester final examinations, and the last three weeks before second semester final examinations. Respondents were asked to fill out questionnaires about where they resided and who were their friends. They completed the UCLA Loneliness Scale. Findings indicate that loneliness was related to residence, with students who lived in dormitories least lonely, students living at home (with parents) next least lonely, and off-campus students the most lonely. Other conclusions were that students spending their first year at a university in dormitories made more new friends, retained fewer of their old friends back home, and were less lonely than any other residence group. Students living with their parents had fewer friends at the university and these tended to be old friends. Students living off-campus made fewer friends and maintained more of their old friendships back home. (Author/BMW)

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A Cohort Analysis of Loneliness and Friendship in the First Year of University

by

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Cohort analysis of loneliness and friendship in the first year of university

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Method

Overview. Random samples of students enrolled in Introductory Psychology were polled in the first two weeks of the academic year; the last three weeks before first semester final examinations and the last three weeks before second semester final examinations. Respondents were asked to fill out questionnaires about where they resided, their friends and finally, the UCLA Loneliness Scale (Russell, Peplau and Ferguson, 1978).

Respondents. The total first year enrollment at Memorial University in the academic year 1978-79 was approximately 2100. Of these students approximately 1100 (52%) are enrolled in Introductory Psychology. As almost all programs offered at the University recommend Psychology for first year students there is no reason to expect any consistent bias in those who enroll in the course. Students who register for the course are assigned by computer to one of 30 sections of 35 students each (on the average). After program conflicts are taken into consideration computer assignment is, for all intents and purposes, random. Thus, a reasonably unbiased random selection of first year students could be obtained by randomly selecting

sections of introductory psychology and testing entire classes.[1] Of those responding to the questionnaire the only data included in this analysis is that of first year students who had not previously responded to the questionnaire.

Cohort sampling. Using sampling without replacement a sample of 6 classes was selected and tested in weeks 1-2 (Time 1) and a sample of 6 classes was selected and tested in weeks 11-12 (Time 2) of the 13 week first semester. From the 30 new sections in the second semester a sample of 16 classes was selected and tested in weeks 11-12 (Time 3). Of the sixteen selected at Time 3 eight were used in the present study.

The sample was increased by one third in this last sample to allow for the one third of the total population who had filled out the questionnaire in the previous semester.

Instruments. At the time of testing all students were told that the purpose of the questionnaire was to find out how well people "fit in" to their first year of university. Students were instructed not to put their name on the questionnaires as respondents were to be anonymous. Although some questions were added and some deleted from the questionnaires at the different times of testing all questionnaires included questions about the students year, sex and high school attended. They all asked students to list the initials of their "good friends" at university and, separately, the initials of their "good friends" not at university, their friend's sex, where they had met their friends and how long they had known them. Students were asked to indicate where they were living by circling one of 13 alternatives. Responses were classed as living in dormitories, living with parents or living off campus.[2]

The following questions were asked some of the time.

Time 1. Students were asked by the interviewer to put a check mark next to the initials of their boy/girl friend.

Time 2. No separate questions asked.

Time 3. Students were asked to indicate: (a) whether they would like to have more, the same or fewer friends than they currently had; (b) whether they felt that they had more, the same number or fewer friends than most people at the university; and (c) whether or not they had previously filled out the questionnaire.

The total number of students responding at each of the three times can be seen in Table 2.

Table 2. Description of samples responding to the questionnaires.

	Residence						
	Dormitory		Off-campus		With Parents		Total
	Male	Female	Male	Female	Male	Female	
Time 1	22	30	11	7	26	37	133
Time 2	24	26	10	9	41	34	144
Time 3	19	14	6	9	31	34	113
Total	65	70	27	25	98	105	390

RESULTS

Loneliness

The overall mean loneliness score, 38.24, is quite similar to the scores obtained at UCLA (39.70) and the University of Tulsa (38.70) (Russell, Peplau and Fergusan, 1978). An analysis of variance[3] indicated that

loneliness was related to residence ($F_{2,372} = 4.26$, $p = .01$) and time of testing ($F_{2,372} = 2.93$, $p = .06$).[4] (The failure of the present study to find gender differences corroborates the UCLA and Tulsa findings).

Loneliness was related to residence in that students living in dormitories were least lonely ($\bar{X} = 36.01$), students living at home with their parents were next least lonely ($\bar{X} = 39.25$) and off campus students were most lonely ($\bar{X} = 40.12$). Loneliness decreased as the year progressed with the biggest drop in loneliness occurring in the second half of the year ($\bar{X}_1 = 38.76$, $\bar{X}_2 = 39.34$, $\bar{X}_3 = 36.23$).

Friends attending university

Number of friends. An analysis of variance indicated that the number of friends a person had at university was related to gender ($F_{1,372} = 9.51$, $p = .002$), to time of testing ($F_{2,372} = 15.49$, $p = .000$) and to residence ($F_{2,372} = 7.05$, $p = .001$). Women have more friends at university ($\bar{X} = 8.36$) than do men ($\bar{X} = 7.70$). Number of friends increases from the beginning of the first semester ($\bar{X} = 7.18$) to the end of the first semester ($\bar{X} = 8.53$) and then remains about the same through the second semester ($\bar{X} = 8.42$). Finally, those living in dormitories have more friends at university ($\bar{X} = 8.60$) than do those living at home with their parents ($\bar{X} = 7.71$) and than those living off campus ($\bar{X} = 7.88$).

Length of time known. Analysis of variance indicates that both gender ($F_{1,372} = 14.14$, $p = .000$) and residence ($F_{2,372} = 66.87$, $p = .000$) have an effect on the length of time which people have known their friends at university. Males appear to have known their university friends longer ($\bar{X} = 10$ months) than have females ($\bar{X} = 8.5$ months) and those living with their parents have known their friends longer ($\bar{X} = 11$ months) than those

coming from out of town regardless of whether they live in dormitories ($\bar{X}$ = 6 months) or off campus ($\bar{X}$ = 8 months). Since more students from St. John's (those who are living with their parents) attend university than do students from out of town, a St. John's student is more likely to have his/her old friends at the university. The questionnaires of a number of students from St. John's indicated that they had not made any new friends in their first year at university! The lack of any difference in length of time known for time of testing is puzzling, one would expect that since most people make their friends in the first semester there should be an increase in length of time known for those in the third testing.

Friends not attending university

Number of friends. Students list more friends attending university ($\bar{X}$ = 8.04) than they do friends not attending university ($\bar{X}$ = 6.59) (t_{400} = 10.09, p = .000). Students living off campus list more friends off-campus ($\bar{X}$ = 7.73) than do students living in dormitories ($\bar{X}$ = 6.85) and than do students living with their parents ($\bar{X}$ = 6.13) ($F_{2,372}$ = 7.40, p = .001). Thus students living off campus do not bring their old friends to university, as do the St. John's students nor do they make as many new friends as do the students living in dormitories; their ties seem to remain off campus, usually in their home town. The number of non-university friends is also related to the time of testing ($\bar{X}_1$ = 5.96, $\bar{X}_2$ = 7.17, $\bar{X}_3$ = 6.59) ($F_{2,372}$ = 6.38, p = .002). The meaning of this result is unclear and will not be dealt with unless it reoccurs in future testing.

Since almost all non-university friends are friends made in high school who did not go on to university the difference between the number of

non-university friends and university friends could be an indication of where a student's peer ties are. A student, for example, who has more non-university friends than university friends would probably have stronger ties to their home town than to the university.

A difference score between the number of university friends and non-university friends was constructed for each student by subtracting the number of non-university from university friends and an analysis of variance was performed on this difference score. The difference between the two groups is smallest for those living off campus, next for those living in St. John's and most for those living in dormitories ($F_{2,374} = 6.92$, $p = .001$). In other words, dormitory students have many more university friends than non-university friends while off campus students have almost the same number of friends in the two groups. Thus, it seems that students living off campus are retaining their ties to their home towns more than any other residential group.

The difference scores are also related to gender ($F_{1,374} = 4.74$, $p = .03$) with males having more off campus ties than do females. The difference scores are not significantly related to time of testing although the trend indicates a lessening of off campus ties as the year progresses ($F_{2,374} = 1.97$, $p = .14$).

Length of time known. Students have known their non-university friends ($\bar{X}$ = 2-3 years) longer than they have known their university friends ($\bar{X}$ = 8.5 months) ($t_{400} = -17.26$, $p = .000$). Length of time non-university friends have been known appears to be related to residence ($F_{2,372} = 2.87$, $p = .058$) and marginally related to time of testing ($F_{2,372} = 2.70$, $p = .068$). Students from out of town, regardless of whether they live in dormitories ($\bar{X}$ = 2-3 years) or off campus ($\bar{X}$ = 2-3 years) have

known their non-university friends longer than have students living with their parents ($\bar{X}$ = 1-2 years). Students tested at Time 2 appear to have known their non-university friends longer ($\bar{X}$ = 2-3 years) than either those tested at the beginning ($\bar{X}$ = 1-2 years) or end ($\bar{X}$ = 1-2 years) of the year. As with the number of non-university friends, this result is puzzling and will not be dealt with unless it reappears in future years.

In summary, students spending their first year of university in dormitories are making more new friends, retaining fewer of their old friends back home and are less lonely than any other residence group. Students living with their parents have fewer friends at university than those living in dormitories, these tend to be old friends, and students living with their parents are lonelier than those living in dormitories. Finally, students spending their first year in off campus residences are making fewer friends, maintaining more of their old friendships back home and are lonelier than students living in dormitories.

To determine what proportion of the variance in loneliness scores could be accounted for a multiple regression analysis (Kim and Kohout, 1975) was performed in which the variables residence, time of testing, gender, number of university friends, how long they had been known, number of non-university friends and how long they had been known were entered.[5] Since previous analysis of variance yielded no significant interactions, interactions were not entered into the equation.

The total variance accounted for was eighteen percent. Of this the number of university friends accounted for six percent, residence, time of testing and gender accounted for one percent each and the rest accounted for less than one percent each. Of the variables entered into the equation

residence, time of testing, gender and friends at university were significantly related to loneliness. Gender is the only variable which was not previously shown to be related to loneliness. Given the amounts variance accounted for and since number of friends is related to residence it seems reasonable to conclude that residence affects loneliness because residence determines how many friends a person will have.

The role which place of residence plays in friendship formation can be seen when we examine where students say they met their friends at university. Answers to the question of where students met their good friends at university were coded as "residence" (for a student living off campus residence would be their boarding house); "university other than residence", e.g., classroom, library, etc., and "other", e.g., home town, in a local bar, on the street, etc. The tabulation of these answers is presented in Table 3 separately for each time of testing. As these results involve multiple responses they can only be considered descriptively and not inferentially.

It appears that at Time 1 most of one's friends at university, no matter where one resides, come from people who one met before coming to university.[6] However, it can also be seen that even within these first two weeks people residing in dormitories are starting to form new friendships in the dormitory; almost as large a percentage as they knew before they came to university. Even those living off campus have already met a third of their good friends at university but these are people they have met on campus, not where they reside. People who live with their parents are meeting less then one quarter of their friends at university.

By the end of the first year of university students living in dormitories have met one half of their friends in residence and the percen-

Table 3. Where students have met their good friends at university.

Time 1

		Where reside		
		Dormitory	Off campus	With parents
Where met friends.	University	14%[a]	39%	21%
	Residence	42%	1%	0
	Other	44%	60%	79%

Time 2

		Where reside		
		Dormitory	Off campus	With parents
	University	17%	39%	22%
	Residence	45%	4%	0
	Other	38%	57%	78%

Time 3

		Where reside		
		Dormitory	Off campus	With parents
	University	22%	75%	35%
	Residence	57%	5%	1%
	Other	21%	20%	64%

a. Percentages are summed in columns.

tage of friends known from before university has shrunk to 22%. For those living off campus the majority of their friends have now been met at the university with the percentage of friends known from before university having shrunk to 20%. For those living with their parents changes have been minimal, the percentage of friends met at university is up slightly and those known from before down slightly.

In summary, as the first year progresses the source of friendships for students from out of town changes from friends from high school days to friends met at university. The source of friendships for students who are living with their parents does not change, they are not making as many new friends, proportionately, (nor in terms of means), as are the students from out of town.

Correlations between the variables

The correlations between the variables loneliness, friends at university, length of time university friends have been known, friends not at university and length of time non-university have been friends known are present in Table 4.

Table 4. Correlations between the dependent variables.

	1	2	3	4
1. Friends at university				
2. Length of time univ. friends known	.00			
3. Friends not at univ.	+.50**	-.10		
4. Length of time non-univ. friends known	+.20**	+.08	+.29**	
5. Loneliness	-.33**	+.13*	-.21**	.00

*$p \leq .05$

**$p \leq .01$

As can be seen loneliness is related to the number of friends at university, the length of time one has known these friends and the number of friends not at university. When number of university friends is partialled out, however, the correlation between non-university friends and loneliness disappears (r_{396} = -.05, p =.28). Thus, the more friends one has at university and the newer the friends one has at university the less lonely one is.

The correlation between the number of university friends and the number of non-university friends indicates that people who had many friends in high school who didn't go on to university also form many friendships at university. Although number of friends at university appears to be related to the length of time one has known one's non-university friends when the correlation between university and non-university friends is partialled out this correlation disappears (r_{398} = .06, p = .19). Although the relationship between university friends and length of time they have been known is not significant, the number of non-university friends is related to the length of time they have been known. The more non-university friends one has, the longer one has known them. This correlation suggests that over a longer period of time than the first year of university people of this age who make many friends keep them for a long time, those who have few friends keep them for shorter periods of time. It will be interesting to see if this relationship appears in future testings.

An analysis of the changes in the correlation between number of university friends and loneliness reveals an interesting but possibly confounded relationship. The correlations between the two variables for the different residential groups at different times of testing are presented in Table 5. Beside each correlation is presented the mean number of university friends for that group at that time. (Maximum possible number of friends listed was eleven).

Table 5. Correlations between number of friends and loneliness for each residence at each time. Mean number of friends at university are also presented.

	Time 1		Time 2		Time 3	
	Correl.	Mean	Correl.	Mean	Correl.	Mean
Dormitory	-.50**	7.63	.00	9.14	-.19	9.30
With Parents	-.38**	6.87	-.26*	8.37	-.24*	7.75
Off Campus	-.56**	6.94	-.52*	7.58	-.05	9.40

* $p \leq .05$

** $p \leq .01$

At first appearance it looks as if the relationship between number of university friends and loneliness changes over time, weakening overall but particularly for dormitory residents. However, a closer examination of the mean number of university friends indicated that whenever the mean is greater than nine the correlation is not significant. This change in correlation could be merely an artifact of the restricted variance as the mean approaches maximum value. One of the changes proposed for the coming year is to increase the space for names of friends to 25 to try to eliminate this "ceiling effect". If the change in the relationship between the two variables persists this pehnomena will warrant further investigation.

Satisfaction with friendships

On the questionnaire administered at Time 3 two questions were included. The first of the two questions was concerned with whether a person wanted more, the same or fewer friends than they currently had.

This was directed at examining the relationship between satisfaction with one's present friendships and loneliness. The second of the two questions was whether a person felt that they had more, the same number as or fewer friends than others. This question was directed at discovering whether social comparison might serve as a basis for determining loneliness.

An analysis indicated that friends compared to others is related to loneliness ($F_{2,109} = 8.80$, $p = .000$). People who feel that they have fewer friends than others are lonelier ($\bar{X} = 46.11$) than those who feel that they have the same number of friends as others ($\bar{X} = 34.21$) and are also lonelier than those who feel that they have more friends than others ($\bar{X} = 34.24$). Upon further analysis, however, it appears that these results are partially mediated by number of university friends. An analysis of the number of university friends by number of friends compared to others indicated a significant effect ($F_{2,109} = 7.98$, $p = .001$). Those who feel that they have more friends than others do, in fact, list more friends ($\bar{X} = 9.33$), those who feel that they have the same number of friends as others list an intermediate number ($\bar{X} = 8.54$) and those who feel that they have fewer friends than others list fewer friends ($\bar{X} = 6.83$). In other words people's perceptions of their friends compared to others seems to be veridical. When a multiple regression analysis (Kim and Kohout, 1975) is used to partial out the effect of each variable both university friends and friends compared to others continue to be significantly related to loneliness but the number of university friends accounts for 10% of the variance while friends compare to others accounts for only 1% of the variance.[7]

Number of friends compared to others is marginally related to number of non-university friends ($F_{1,109} = 2.73$, $p = .07$). Those who feel that they have fewer friends than others list fewer non-university friends ($\bar{X} = 5.33$) than either of the other groups ($\bar{X}_{same} = 6.82$; $\bar{X}_{more} = 6.43$).

The question which asks how many friends a person wants to have compared to what they presently have is marginally related to loneliness ($F_{1,109} = 2.91$, $p = .09$).[8] People who want more friends than they currently have are marginally lonelier ($\bar{X} = 38.29$) than are people who are satisfied with their current number of friends ($\bar{X} = 33.20$).

The relationship between number of friends at university and friends wanted is also marginal ($F_{1,109} = 3.06$, $p = .08$). Those who want more friends have more friends ($\bar{X} = 8.57$) than do those who want the same number as they currently have ($\bar{X} = 8.22$). This is in the opposite direction than one would predict from the loneliness scores. Since both results are marginal they will not be dealt with further.

The number of non-university friends which one has is related to the number of friends which one would like to have ($F_{1,109} = 6.28$, $p = .014$). Those who want more friends than they currently have, have more non-university friends ($\bar{X} = 7.03$) than do those who want the same number of friends as they currently have ($\bar{X} = 5.84$). Analysis of mean length of time known indicates that non-university friends have been known at least since high school ($\bar{X} = 2$-3 years). If we assume that number of non-university friends gives some indication of how many friends a person had in high school then these results may mean that those who had more friends in high school want more friends than they now have. It is possible that those who feel deficient compared to what they had in high school are those who are now lonely. This will have to be examined further in subsequent data collection and analysis.

Miscellaneous analysis

At the time of the first testing respondents were asked, after listing their university and non-university friends, to indicate which set of initials belonged to their "boy" or "girl" friend, if they had one. It was hypothesized that out of town students who checked the initials of a non-university person would not have had recent contact with their boy/girl friend and would be lonelier than those who checked the initials of a university person. The data was analysed for students from out of town who had known their boy/girl friend since before the semester began. The results while suggestive (boy/girl friend: not at university $\bar{X}_{loneliness}$ = 34.65; at university $\bar{X}_{loneliness}$ = 30.80) are not significant. This may be attributable to the small number of students who responded to this question (N = 27).

Whether an out of town student lived alone or with others did not appear to affect their loneliness, the number of university friends they had, the number of non-university friends they had, the number of friends they wanted compared to what they presently had nor the number of friends they felt that they had compared to others at university. These results should be viewed with some caution since the number of respondents in each category is very different, 15 living alone and 167 living with others. (Even though the numbers were unequal the variances were not significantly different).

FOOTNOTES

1. After the purpose of the research was explained no student refused to fill out the entire questionnaire.

2. All students from St. John's lived with their parents, all students from out of town lived either in dormitories or off-campus.

3. As unequal N may affect an analysis of variance, this data was analysed using a classic approach, an hierarchical approach and a regression approach (Kim and Kohout, 1975). As there were no differences in the results generated by the three approaches the results of the classic approach are reported here.

4. No interactions in any of the following analysis were significant.

5. For purposes of analysis at this stage it is assumed that the variables contribute to loneliness rather than vice versa.

6. When means are used they reflect the same trends reported in this section for proportions.

7. Note that this analysis is on a subsection of the total population on which the previous analysis was done and not all of the variables are partialled out. This result has implications for those using measures of satisfaction with relationships alone to study loneliness in college students.

8. Only one person indicated that they wanted fewer friends than they currently had. Since this created an analysis of variance with drastically different numbers of subjects in each condition this classification was excluded from the analysis. Exclusion did not

affect the friends compared to other's analysis but did move the friends wanted analysis from not significant (p = .23) to the marginally significant result reported in the text.

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